Reviewer's report

Title: Do cognitive aids reduce error rates in resuscitation team performance? Trial of Emergency Medicine Protocols In Simulation Training (TEMPIST) in Australia.

Version: 0 Date: 16 Nov 2019

Reviewer: C S Webster

Reviewer's report:

Overall this is an interesting, well-written and important paper. Study design and analysis seem sound, and conclusions well justified. I have only a small number of relatively minor points for the authors to address:

Page 5, line 57: "two handbook combinations in other words there are four" - there seem to be a missing word or two here, or missing punctuation?

Page 7, line 37: "very slim" - perhaps the less colloquial "small" would be better?

Page 7, line 3: state the manufacturer of SPSS on first mention.

Page 7, line 40: You have a separate heading for blinding and give further information on this under it, but you have already talked about blinding in the previous paragraph. Best to describe blinding clearly, once, in one location.

Page 8 top: you already mentioned in the introduction the design principles of your innovation, and the fact that you used experts from the aviation industry - does this need to be mentioned again in Methods? Once in one location is probably enough. Also, I notice there is no acknowledgement to the experts you consulted at the end of your paper? Would an acknowledgement be appropriate?

Page 8, line 9: Objectives typically appear as the last line in the introduction rather than being stated part way through the Methods?

Page 8, line 32: You appear to use the terms cognitive aid, handbook and sometimes checklist in a synonymous way, all throughout your paper. On page 14, line 44, you use another term: Emergency Protocols Handbook. It would be clearer for the reader if you stuck to a single terminology when referring to your innovation. Is it a handbook of checklists? Or a cognitive aid containing linear flow diagrams made from checklists and protocols? It's slightly confusing as it stands.

Page 9, whole page: You talk of 15 key processes and then errors - but it is not entirely clear what an error is comprised of. Is an error the omission of a key process, or the actioning of one in the wrong sequence? Later under a heading on statistical analysis you mention a range of 0 to 15 - presumably this is the possible range in scores where one point is allocation for each correct
key process? But this could be clearer, and the scoring scheme should be described clearly in one place. What an error is and how they are scored should also be clearer in the abstract (since this is the outcome your whole analysis relies on).

Page 10, line 31: You should report your inter-rater reliability score in the text, then put the details of how it was calculated in the appendix - don't expect the reader to hunt for the appendix to find out what the score itself is.

Page 12, line 18: "see Table 3 and 2C" - where is table 2C?

Page 14, line 9: "improved their performance by at least 20%" - do you mean a 20% reduction in errors in the execution of key processes?

Page 15, line 43: seems to be a repeated "that"

Page 16, line 18: there have been studies which have systematically compared performance in high fidelity simulation to the same outcomes in the clinical context in terms of team behavior and error rates - the authors may wish to reference the below papers in support of the claim that results in simulation are meaningful for the real world:

Weller J, Henderson R et al. Building the Evidence on Simulation Validity - Comparison of Anesthesiologists' Communication Patterns in Real and Simulated Cases. Anesthesiology 2014; 120:142-8

Merry AF, Hannam JA et al. Retesting the Hypothesis of a Clinical Randomized Controlled Trial in a Simulation Environment to Validate Anesthesia Simulation in Error Research (the VASER Study). Anesthesiology 2017; 126:472-81

Page 17, line 28: "during a resuscitation event. Our participants" - would these two sentences work better as a single sentence?

Page 20, references: There is inconsistent use of index medicus abbreviations and full journals names. Also CMAJ is not an index medicus abbreviation.

END

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